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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/711,062	08/20/2004	Yen-Cheng Chen	AVIP0035USA	5061
27765 7590 12/12/2007 NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION P.O. BOX 506 MERRIFIELD, VA 22116			EXAMINER TRAN, NHAN T	
			ART UNIT 2622	PAPER NUMBER
			NOTIFICATION DATE 12/12/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/711,062	CHEN ET AL.	
	Examiner	Art Unit	
	Nhan T. Tran	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 August 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 7/21/2007 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

3. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claim 10 is objected to because of the recitation of "nth bit" in the last three lines of this claim, which should be corrected to read as – nth bit --. Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1 & 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Brusewitz et al. (US 6,038,257).

Regarding claim 1, Brusewitz discloses an image-capturing apparatus with error-detecting function, the image-capturing apparatus (Fig. 1 and col. 7, lines 30-39) comprising:

a light sensor (indicated by camera 10) for sensing light reflected from an image and for transforming the light into an analog image signal (Fig. 1 and col. 2, lines 54-63);

an analog front-end device (ADC 14, col. 3, lines 2-5) electrically connected to the light sensor for transforming the analog image signal into a digital image signal;

an encoder (16) electrically connected to the analog front-end device for encoding the digital image signal transformed by the analog front-end device (Fig. 1 and col. 3, lines 14-30);

a decoder (24) for decoding the encoded digital image signal encoded by the encoder (Fig. 1 and col. 4, lines 2-36);

a processor (22 in combination with 18) electrically connected to the decoder for determining whether the encoded digital image signal encoded by the encoder is correct or not (the encoded signal contains errors after being transmitted) and for generating a control signal to control the operations of the encoder (Fig. 1 and col. 7, lines 30-39) and the light sensor (col. 5, lines 15-25 and col. 8, lines 16-20, wherein the camera 10 is also controlled to capture a still image in response to the user's request);

a signal transmission device (20, 34) electrically connected between the light sensor, the decoder, and the processor for transmitting the encoded digital image signal encoded by the encoder and the control signal generated by the processor (Fig. 1 and col. 3, lines 59-66).

Regarding claim 3, it is also seen in Brusewitz that the control signal enables the light sensor (camera 10) to sense light reflected from another image (Fig. 1 and col. 8, lines 16-20).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brusewitz et al. (US 6,038,257) in view of Lee (US 6,275,537).

Regarding claim 4, although Brusewitz discloses a buffer (17) as shown in Fig. 1, Brusewitz does not explicitly disclose a register electrically connected between the analog front-end and the encoder for storing the digital image signal transformed by the analog front-end device.

Lee teaches an improved apparatus (Fig. 3), wherein an additional register (buffer 30D) is provided between an analog front-end (A/D converter 30B) and an encoder (30D) for buffering the output digital data from the A/D converter prior to encoding process for effectively improving image processing and transmission between the transmitter and receiver (see Lee, Fig. 3 and col. 5, lines 25 and col. 7, lines 35-39).

Therefore, it would have been obvious to one of ordinary skill in the art to modify the system in Brusewitz to provide a register electrically connected between the analog front-end device and the encoder for storing the digital image signal transformed by the analog front-end device in view of the teaching of Lee so as to effectively improve image processing and transmission between the transmitter and receiver.

Regarding claim 5, Brusewitz in view of Lee as discussed in claim 4 also discloses that every time the analog front-end device transforms a new analog image signal into a new digital image signal, the analog front-end device updates the digital

image signal stored in the register with the new digital image signal (see Fig. 3 in Lee, wherein the A/D converter 30B inherently updates the digital signal stored in the buffer 30D with a new digital signal as it comes).

Regarding claim 6, it is clearly seen in the combined teachings of Brusewitz and Lee as discussed in claim 4 that the control signals enables the encoder to encode the digital image signal stored in the register (buffer 30D in Lee, col. 5, lines 24-25).

9. Claims 2, 7-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brusewitz et al. (US 6,038,257) in view of Johansson et al. (US 7,099,865).

Regarding claims 7 & 8, Brusewitz are just silent about the encoder, the decoder and the processor form an odd parity (or even parity) error-checking mechanism.

Johansson teaches that it is well known in the art to provide odd parity (or even parity) error-checking mechanism or cyclic redundancy error-checking (CRC) mechanism for a transmitting and receiving system for checking errors in transmitted data since these error-checking algorithms are popular and accurate so that the corrupted data due errors is replaced by requesting for a new data (see Johansson, col. 2, lines 28-36 and col. 5, line 30 – col. 6, line 14).

Therefore, it would have been obvious to one of ordinary skill in the art to reconfigure the system in Brusewitz to form an odd/even parity error-checking mechanism by the encoder, the decoder and the processor since the odd/even parity

error-checking algorithm is one of the most popular and accurate method for checking errors in digital data.

Regarding claim 9, this claim is also met by the analysis of claims 7 & 8, wherein the CRC is used as an alternative algorithm instead of odd/even parity error-checking.

Regarding claim 10, Brusewitz in view of Johansson as analyzed in claims 7-9 also encompasses that the digital image signal comprises N bits, and the encoded digital image signal encoded by the encoder from the digital image signal comprises a check bit having a value set according to the N bits of the digital image signal and a predetermined error-checking mechanism formed according to the encoder, the decoder, and the processor, and N corresponding bit pairs, each of the bit pairs comprising an odd location bit and an even location bit equal to the odd location bit, and an odd location bit of an n^{th} bit pair of the encoded digital image signal having a value equal to that of an n^{th} bit of the digital image signal (see the analyses of claims 7-9 and Johansson in col. 5, lines 30-47, wherein the subject matter as claimed is inherently included in the odd/even or CRC error-checking mechanism).

Regarding claim 11, Brusewitz in view of Johansson as analyzed in claims 1 and 7-10 also discloses that the control signal is a null signal (when there is no error detected).

Regarding claims 12-14, these claims are also met by the analyses of claims 7-9, respectively.

Regarding claim 2, as mentioned in claims 7 & 8, Johansson teaches that only when the error is detected (see Fig. 7 in Johansson), a control signal is generated to request for transmitting a new data to replace the corrupted data. Thus, the combined teaching of Brusewitz and Johansson also meets "the processor is to generate the control signal only if the processor has determined that the encoded digital image signal encoded by the encoded is not correct."

10. Claims 15, 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brusewitz et al. (US 6,038,257) in view of Poo et al. (US 2003/0005337).

Regarding claim 15, Brusewitz discloses all the subject matter as discussed in claim 1 but fails to explicitly disclose that the processor is an application-specific integrated circuit (ASIC). However, as taught by Poo, an imaging system comprises a processor (10 in Fig. 1A) which is implemented by ASIC for processing output image from an imaging module (50) (see Poo, paragraph [0023]). It is also well understood by one skilled in the art that the application-specific integrated circuit would significantly reduce a number of circuit components, thereby reducing size and cost of overall circuitry in comparison to conventional non-integrated components.

Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Brusewitz and Poo to make the processor as an application-specific integrated circuit for reducing size and cost of the imaging system.

Regarding claim 17, Brusewitz in view of Poo further discloses that the analog front-end device is installed in a light engine comprising the light sensor (see Poo, Fig. 1A, wherein the converter 54 is installed in the imaging module 50).

Regarding claim 18, Brusewitz in view of Poo further discloses that the encoder is installed in a light engine comprising the light sensor (see Poo, Fig. 1A, wherein the converter 54, which is also known as a digital encoder, is installed in the imaging module 50).

Regarding claims 19 & 20, Brusewitz in view of Poo further discloses that the analog front-end device and the encoder are installed on a motherboard (see Poo, Figs. 1A in which all components are installed within the motherboard 70).

11. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brusewitz et al. (US 6,038,257).

Regarding claim 16, Brusewitz discloses a camera (10) but silent as to the light sensor being a CCD. However, an Official Notice is taken that it is notoriously well

known in the art to use CCD as an image sensor in a camera since the CCD provides high dynamic image output compared to other image sensor types.

For this reason, it would have been obvious to one of ordinary skill in the art to use CCD as the light sensor in Brusewitz.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T. Tran whose telephone number is (571) 272-7371. The examiner can normally be reached on Monday - Friday, 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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A handwritten signature in black ink, appearing to read 'Nhant T. Tran', written in a cursive style.

NHANT T. TRAN
Patent Examiner